

AMENDMENTS TO THE CLAIMS

1 - 34 (cancelled).

35 (original). A method of encoding chemical taggants using multiple pairs of chemicals to represent the bits of a binary serial number wherein the presence of one chemical of each pair represents a first predetermined bit value and the presence of the other chemical of each pair represents a second predetermined bit value.

36 (original). The method of claim 35 where one of the predetermined bit values is 0 and the other predetermined bit value is 1.

37 (original). A method of encoding chemical taggants comprising:  
identifying a group of  $M \times N$  distinct chemical taggants where  $M$  and  $N$  are integers; and  
dividing said chemical taggants into  $M$  groups of  $N$  chemicals each; and  
assigning one taggant chemical from each of the  $M$  groups to correspond to each integer from 0 to  $N-1$  inclusive; and  
isolating the substance to be tagged and assigning to it an  $M$ -digit, base- $N$  serial number;  
and  
adding to the substance to be tagged a quantity of each of the  $M$  chemicals corresponding to the values of the  $M$  digits in the assigned serial number.

38 - 41 (cancelled).

42 (original). A binary taggant comprising:  
at least a first chemical pair comprising:  
a first chemical of the first chemical pair capable of functioning as a taggant and  
representative of the first of two binary values; and  
a second chemical of the first chemical pair capable of functioning as a taggant and  
representative of the second of the two binary values.

43 (original). The binary taggant of claim 42 further comprising:  
a second chemical pair comprising:  
a first chemical of the second chemical pair capable of functioning as a taggant  
and representative of the first of two binary values; and  
a second chemical of the second chemical pair capable of functioning as a taggant  
and representative of the second of the two binary values.

44 (original). The binary taggant of claim 42 further comprising:  
at least two additional chemical pairs each of said pairs comprising:  
a first chemical of each additional chemical pair capable of functioning as a  
taggant and representative of the first of two binary values; and  
a second chemical of each additional chemical pair capable of functioning as a  
taggant and representative of the second of the two binary values.

45 - 47 (cancelled).

48 (original). An encoded taggant system capable of representing any M-digit, base-N serial number where M and N are integers, comprising:

M x N distinct chemicals each capable of functioning as a taggant;

said M x N distinct chemicals grouped into M groups of N distinct chemicals in each of the M groups; and

each of the N distinct chemical in each of the M groups corresponding to one integer from 0 to N-1 inclusive,

whereby a quantity of the distinct chemicals corresponding to the values of a predetermined, M-digit, base-N serial number may be selected and added to a substance assigned to the predetermined serial number.

49 (original). The taggant system of claim 48 wherein at least one of the taggant chemicals is isotopically substituted.

50 - 60 (canceled).